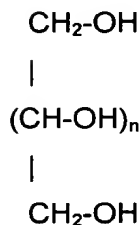


CLAIMS for USA

- Article 34
Enc 31
1. A method for producing hydrophobic polyolefin-containing fibres or filaments, the method comprising the following steps:
- 5 a. melt spinning a polyolefin-containing material to produce spun filaments,
 - b. applying to the spun filaments a first spin finish with an active ingredient content comprising 20-100% by weight of at least one water-insoluble ester of a mono-, di-, tri- or tetrahydric alcohol with a molecular weight not exceeding 500 and a branched or straight chain fatty acid with between 12 and 30 carbon atoms,
 - 10 c. stretching the filaments,
 - d. applying to the stretched filaments a second spin finish with an active ingredient content comprising 20-100% by weight of at least one water-insoluble ester of a mono-, di-, tri- or tetrahydric alcohol with a molecular weight not exceeding 500 and a branched or straight chain fatty acid with between 12 and 30 carbon atoms,
 - 15 e. optionally, crimping the filaments,
 - f. applying, during the spinning stage, the stretching stage or after crimping, an antistatic agent,
 - g. drying the filaments, and
 - h. for the production of fibres, cutting the filaments to obtain staple fibres.
 - 20
2. A method according to claim 1 wherein the fibres or filaments are cardable staple fibres.
3. A method according to claim 1, wherein the polyolefin-containing material is polypropylene, polyethylene or a copolymer thereof.
- 25
4. A method according to claim 1, wherein the melt spinning is performed so that the melt flow rate of the spun filaments is between 1.5 and 7 times the initial MFR of the polyolefin-containing material before spinning as measured according to ISO 1133.
- 30
5. A method according to claim 1, wherein the active ingredient content of the first and/or second spin finish comprises up to 80% by weight of a mineral oil and up to 10% by weight of an ethoxylated alcohol.
6. A method according to claim 1, wherein the water-insoluble ester is the reaction product
- 35
- of a polyol having the formula:



or



5 in which R is an alkyl group having 1 to 4 carbon atoms; m is 0 to 3 and n is 0 to 4; and a branched or straight chain fatty acid having between 12 and 30 carbon atoms.

7. A method according to claim 6 wherein the alcohol is selected from the group consisting of ethylene glycol, propylene glycol, glycerol, neopentyl glycol, trimethylolethane and
15 trimethylolpropane.

8. A method according to claim 6 wherein the ester is a monoester, a diester or a polyester.

9. A method according to claim 1, wherein the first and/or second spin finish comprises at
20 least one water-insoluble ester of glycerol and at least one saturated or unsaturated fatty acid residue having 12-24 carbon atoms.

10. A method according to claim 1, wherein the first and/or second spin finish comprises at least one water-insoluble ester in the form of a monoester of a fatty acid having 14-18
25 carbon atoms and a branched chain alcohol.

11. A method according to claim 1, wherein the first and/or second spin finish comprises at least one water-insoluble ester of glycerol and at least one saturated or unsaturated fatty acid residue having 12-24 carbon atoms and at least one water-insoluble ester of
30 neopentyl glycol and at least fatty acid residue having 12-24 carbon atoms.

12. A method according to claim 1, wherein the antistatic agent is applied after crimping.

13. A method according to claim 1, wherein the antistatic agent is anionic or nonionic.
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14. A method according to claim 1, wherein the antistatic agent has the formula $R^1R^2O_3PO^+M^+$, where R^1 and R^2 are independently selected from the group consisting of C_2 - C_{30} alkyl and polyether, and M^+ is an alkali metal ion, an ammonium ion or a proton.
- 5 15. A method according to claim 1, wherein the antistatic agent has the formula $R^1R^2R^3O_3PO$, where R^1 , R^2 and R^3 are independently selected from the group consisting of methyl, C_2 - C_{30} alkyl and polyether.
16. A method according to claim 1 wherein the first and/or second spin finish comprises
- 10 0.1-2% by weight (active ingredient content, based on the total active ingredient content) of a wetting agent.
17. A method according to claim 1 wherein the first and/or second spin finish comprises 0.5-15% by weight (active ingredient content, based on the total active ingredient content)
- 15 of a friction reducing additive comprising a wax or wax mixture and/or a polydiorganosiloxane.
18. A polyolefin-containing fibre produced according to the method of claim 1.
- 20 19. A polyolefin-containing fibre carrying at its surface 0.01-1.0% by weight of the fibre of at least one water-insoluble ester of a mono-, di-, tri- or tetrahydric alcohol with a molecular weight not exceeding 500 and a branched or straight chain fatty acid with between 12 and 30 carbon atoms.
- 25 20. A method for producing a nonwoven material, the method comprising providing a web of fibres according to claim 18 and bonding the web to produce the nonwoven material.
21. A method for producing a nonwoven material, the method comprising providing a web of fibres according to claim 19 and bonding the web to produce the nonwoven material.
- 30 22. A nonwoven material comprising fibres according to claim 18.
23. A nonwoven material comprising fibres according to claim 19.

24. A composite material comprising a nonwoven material according to claim 22, wherein said nonwoven material is:

- a. laminated to a film layer or otherwise provided with a film coating; or
- b. bonded to or otherwise provided with a spunbonded layer or a layer of meltblown fibres.

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25. A composite material comprising a nonwoven material according to claim 23, wherein said nonwoven material is:

- a. laminated to a film layer or otherwise provided with a film coating; or
- b. bonded to or otherwise provided with a spunbonded layer or a layer of meltblown fibres.

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add B!
add C!